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**Stack Overflow: A Miracle Within Itself To Promote Better Programming**

**A detailed review about the Stack Overflow Developer's Survey**



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## Stack Overflow Developers Survey 2019

### □ Introduction

- Programming is a skill used to solve complex real-world problems. What if you have a query or a problem in a skill used to solve complex problems?
- Stack Overflow was created in the year 2007 by Jeff Atwood and Joel Spolsky as a discussion-based forum in the form of questions and answers from the field of computer programming. The parent company of Stack Overflow is Stack Exchange, Inc. owned by the same.
- Being in a question-answer domain, user loyalty and trustworthy-content/answers were key to a better future for Stack Overflow. During the yesteryears, websites like Yahoo Answers and Experts-Exchange had a steady hold in this domain, whereas Quora, was still in the womb.
- Back in 2008, Jeff and Joel had to fix something that would set them somewhere

close to the current market leaders and even somewhere close to their competitor Quora. The ace up Quora's sleeve was the openness to questions from an endless array of domains, as opposed to the programming focused Stack Overflow. Five years down the lane, they released the functionality of 'closing questions', something that Yahoo Answers did not have. Using this functionality, Stack Overflow could identify and even prevent low quality questions. In 2010, Jeff also mentioned about the presence of duplicate questions not being an issue rather a medium to drive more traffic towards their website.

- As of 2019, Stack Overflow has surpassed a count of 10 million registered users worldwide (2), while they had crossed a figure of getting 16 million questions back in July 2018.

### □ Global Developers Survey Landscape 2018

As per a study on Global Developer Hiring Landscape 2018, around 82.8% developers chose Stack Overflow's question and answer format a method for self-tutoring among, only second to official documentation at 83.5%.

## Global Developers Survey Landscape 2018

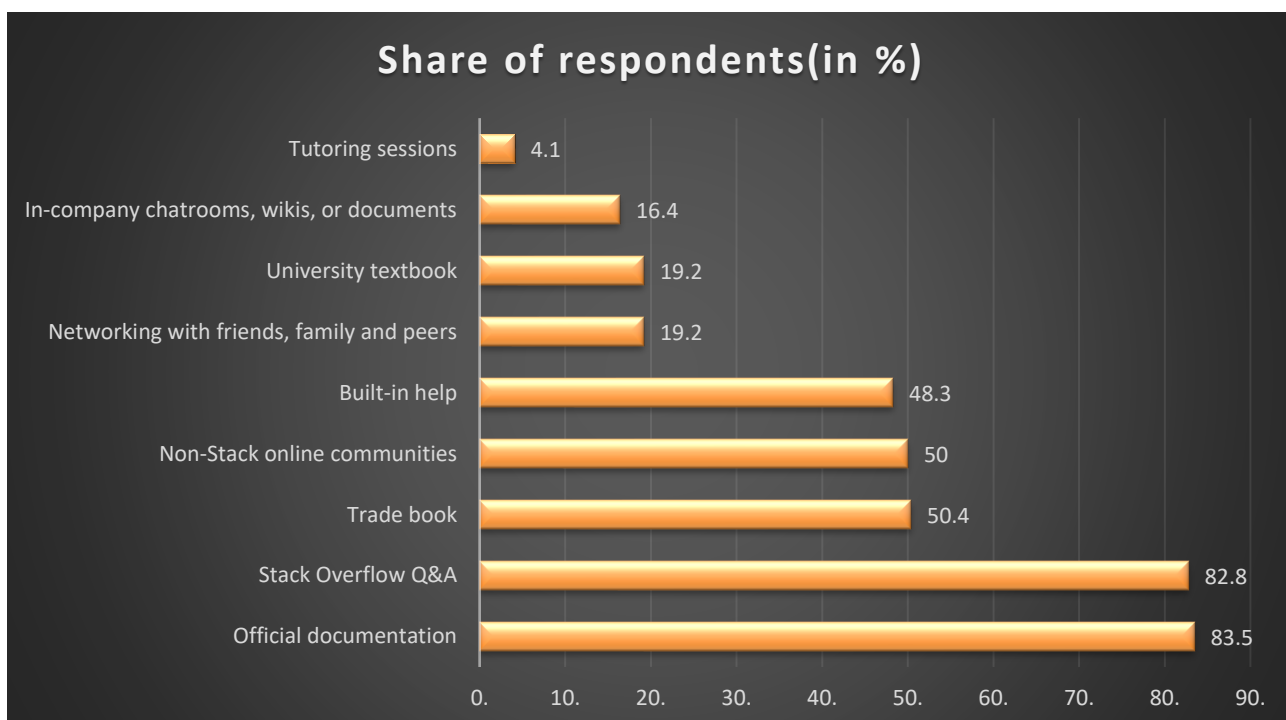


Figure1

[Grab your reader's attention with a great quote from the document or use this space to emphasize a key point. To place this text box anywhere on the page, just drag it.]

**Stack Overflow Developer’s Survey:**

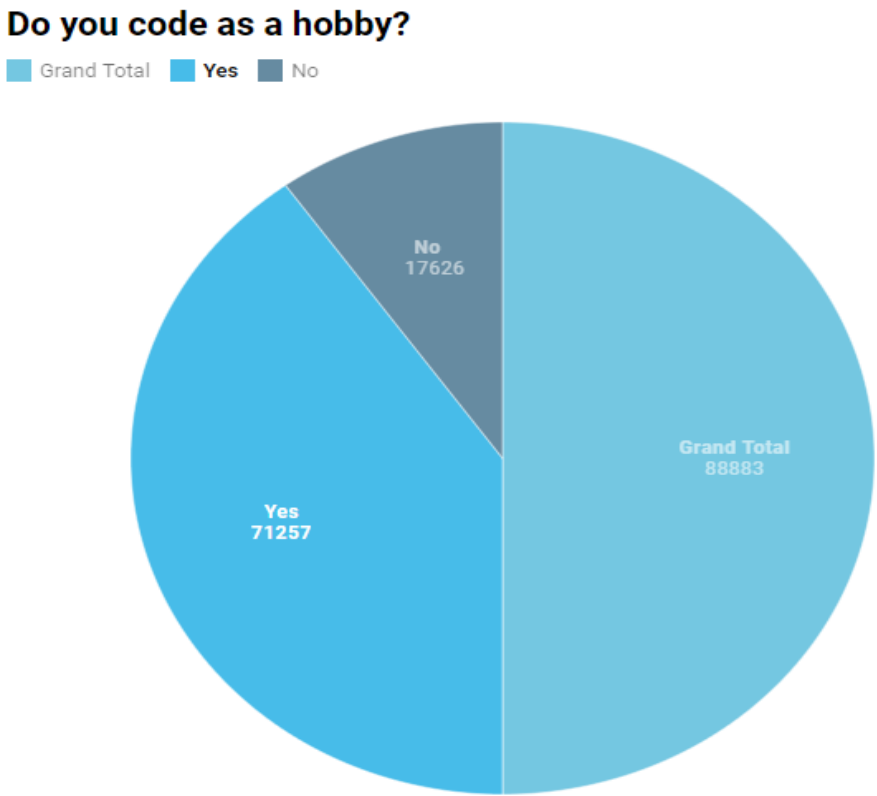
The first Stack Overflow Annual Developer’s Survey was held in the year 2011 and has been a source of self-testing and trustworthy insightful information, since then. The survey touches a wide array of technological and developer-oriented aspects in the world of programming. In the tsunami-like growing world of programming, the survey results by this survey serves as a means of clear understanding and connectivity and for readers, both

**One of the initial survey questions was about whether the participant pursued coding as hobby.**

A staggering figure of approximately 71,000 respondents said that they coded as a hobby, which simply translates to 80.2%. This statistic helps us understand that a lot of developers’

new and experienced. The 2019 survey had somewhere close to 88,884 responses from 170 different countries, with topics ranging from education, the use of open source, career satisfaction to name a few. We will discuss in detail about few of the most crucial questions from the survey, to get insights about developer and technological trends. Apart from these we will also analyze a few merged/combined aspects(questions) to get newer insights.

code when they’re not working. That’s a positive sign for the community as programming is an essential skill to solve real-life problems using software technologies. This gives more reason for communities like Stack Overflow to keep up with the good work.



Data source: Stack Overflow

Figure 2

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Respondent Analysis by looking at the age when they wrote the first of code

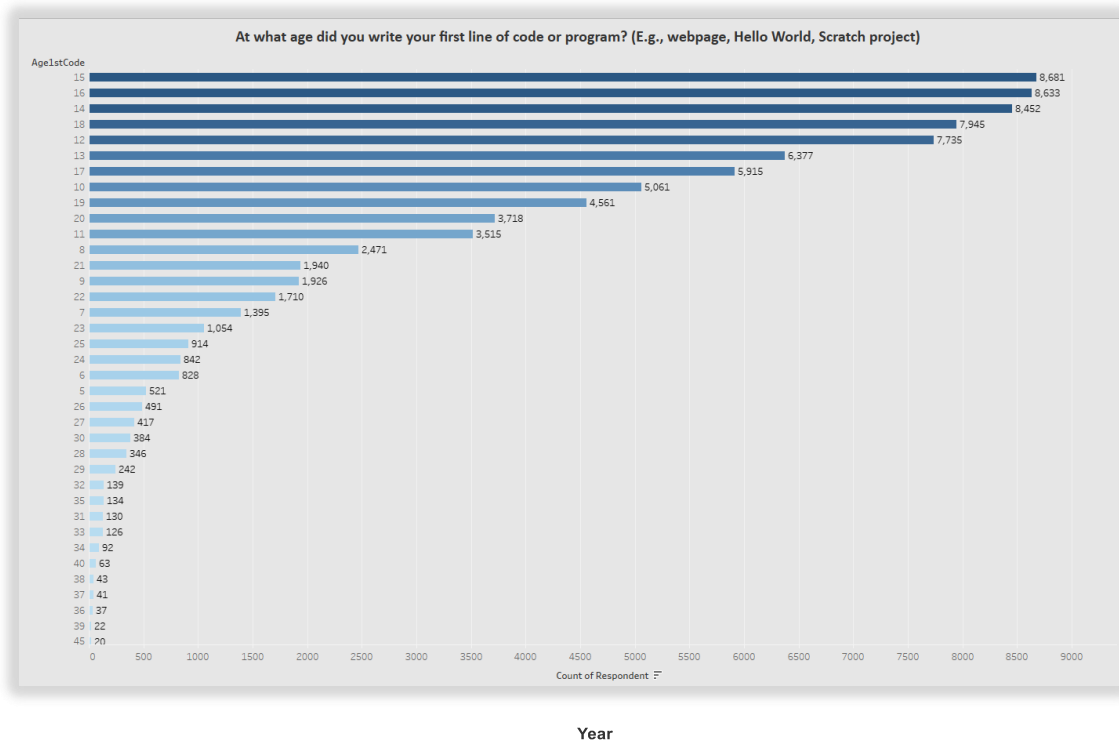


Figure 3

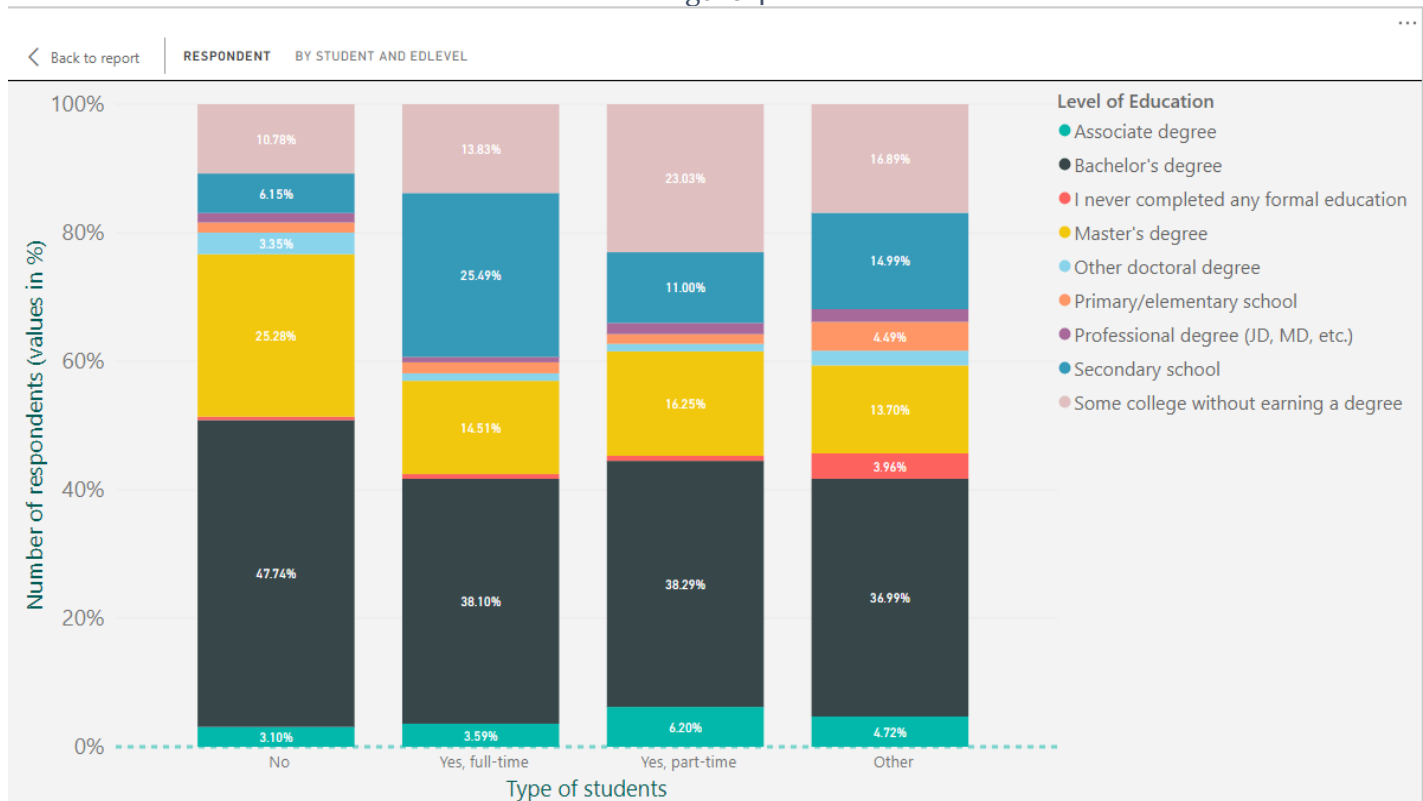
Age when the respondents wrote the first line of code

The second aspect we will look at from the survey results is simple, yet, extremely essential to analyse one’s journey in the world of programming. Respondents were asked about the age when they wrote the first line of code. This included anything from writing a program for printing hello world or even creating a basic webpage in HTML. It was seen that around 8,681 of the respondents were the ones who wrote their first line of code at the age of 15. This was followed by ages between 10 to 20. This clearly showed that a younger mind was more acceptable towards learning new things in

comparison to that of higher ages. The Stack Overflow reputation system is built such that it promotes the act of upvoting a question and answering a question asked and answering it perfectly to gain more upvotes. (Image needed). An upvote on Stack Overflow may be equivalent to 10 likes on Facebook as it’s a huge physiological high for the brain (like the reward cycle) as its way more difficult to get an upvote as opposed to getting a like. This promotes younger minds to look for answers and answer questions to gain reputation, and in turn, become more sound about the topic at hand.

## Are you a student? And what level of education have you completed?

Figure 4

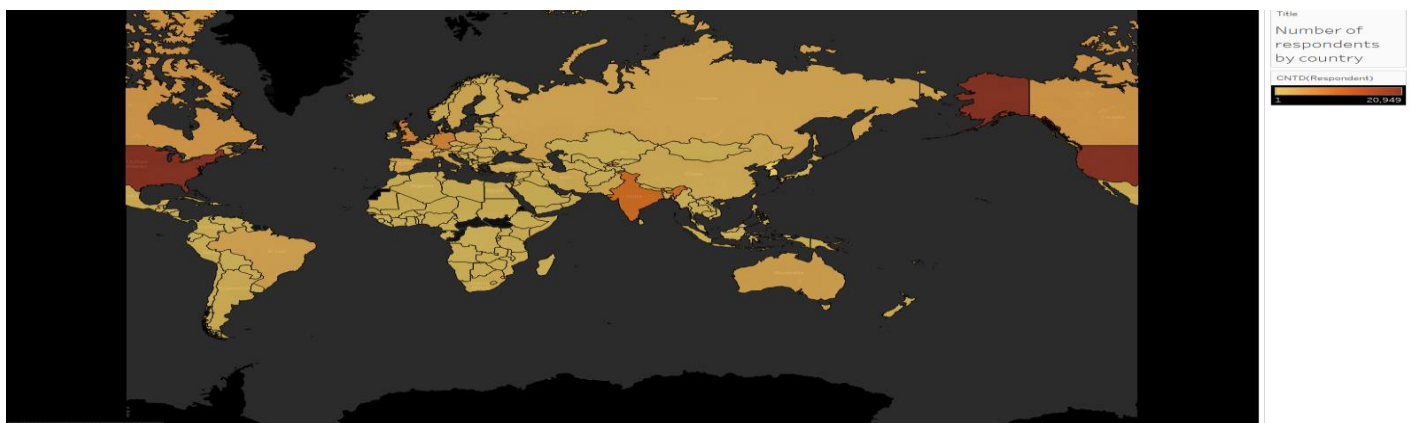


**This illustration blends in two aspects from the developers survey namely types of students and level of education of the total respondents.** This graph shows that there are many respondents who have finished their bachelors and are working in the field of programming. These students who've finished their

bachelors and masters have started working. Out of the total respondents, the one who are full-time students, 38.10% of them are pursuing bachelors. Overall a majority all the types of students, be part, full-time, employed or other, have bachelors or masters' degrees in the respective field of interest.

## Which countries have higher respondents Developers Survey 2019?

Figure 5



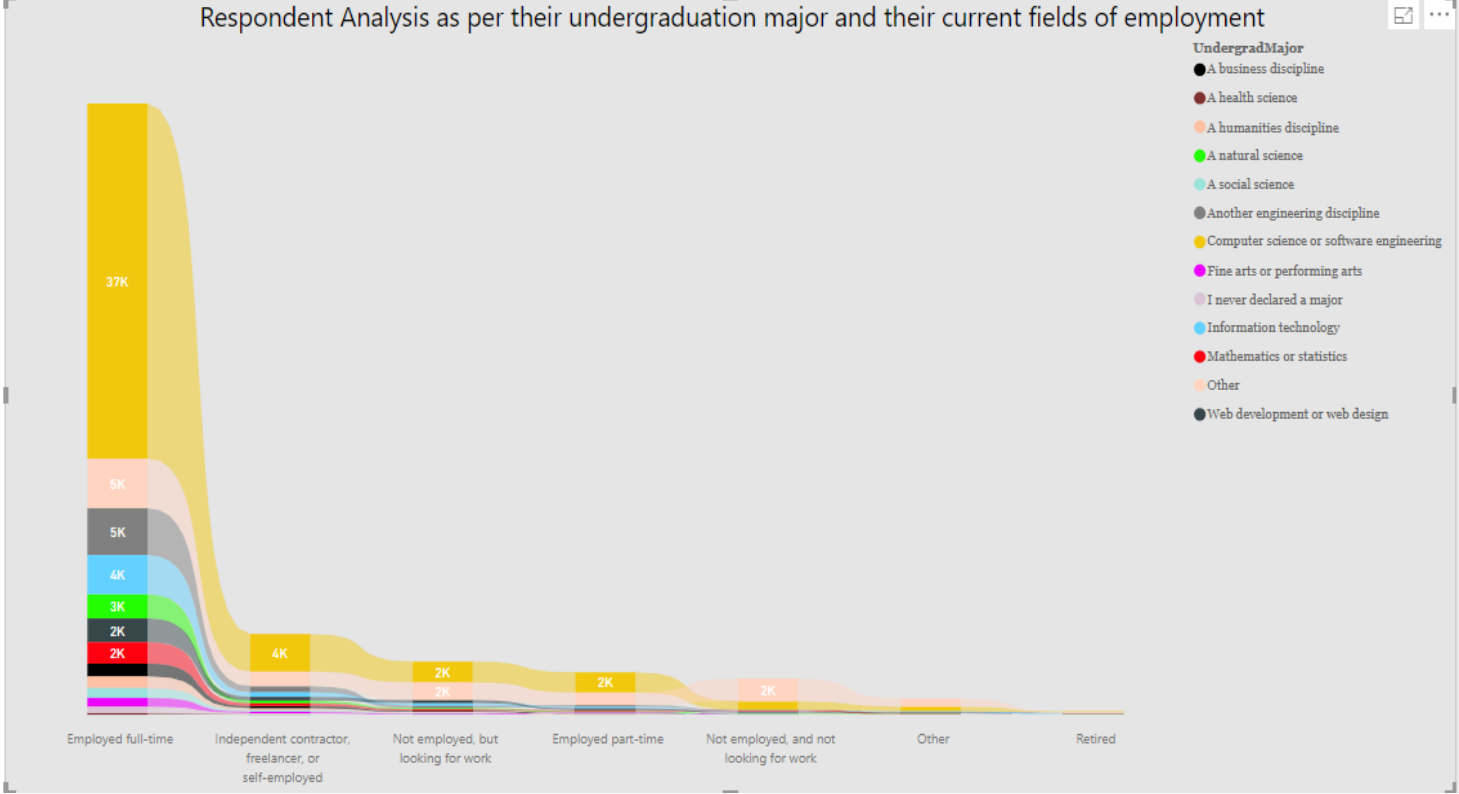
Stack Overflow raised \$40 million of Series D funding led by Andreessen-Horowitz (venture capital firm) on January 20, 2015, putting pre-val at \$419.19 million and post-val at \$459.19 million.

**The number of respondents by region**  
We could see that a lot of respondents were from countries like the United States of America with **A question on the preferred social media applications used by the total respondents** showed that a lot of users preferred Reddit which accounted to 17.0 % of the total respondents followed by YouTube which finished second by a

around 20,000 respondents, followed by 9000 respondents from India.

narrow gap of only 0.6%.  
As per normal users Facebook ranks as the best social media platform against what developers voted Reddit and YouTube to be the leaders.

Figure 6



This particular question addresses the need to understand the relationship between the respondent's undergraduate major and their current field of employment.

Maximum number of correspondents were observed to be from the field of computer science, engineering disciplines, business intelligence and mathematics.

Languages Worked With



Figure 7

This figure depicts that JavaScript and C are the languages used prominently by developers. Other

technologies like PowerShell, Assembly, CSS, Java, HTML, Python also stand tall in the list of languages that the respondents have worked with.

### Languages You Desire To Work On Next Year



Figure 8

Figure 8 talks about the various languages the respondents desire to learn in the year 2019 as a part of their journey of being a developer or to become a

developer in the near future. We can see a lot of languages that are a part of both the questions' responses as people had the option of including those in both the responses.

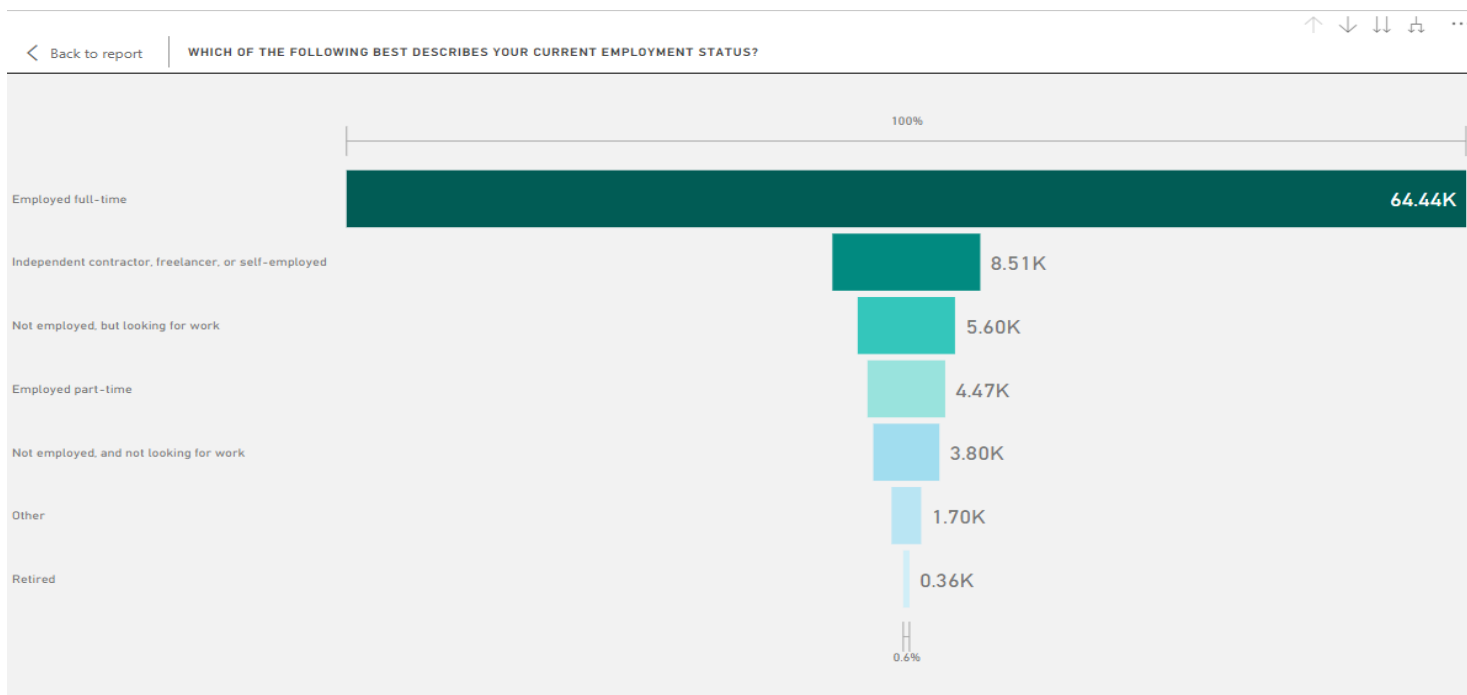


Figure 9: Which of the following options best describes one's employment status?

The figure shows that most of the people who responded had full-time employment at some

workplace as their preferred choice(64.4K). The remaining employment alternatives had relatively less responses.

## **CONCLUSION**

The survey research study gives valuable insights about the developer survey 2019 organized by Stack Overflow. A total of 88883 respondents took the survey from 179 countries.

The respondents were analyzed on the basis of their education, employment status, languages of preference for development, languages of preferences for learning more in the coming years and much more.

The survey gives information about Stack Overflow's history, owners, it's growth and much more.

Python was captured as the fastest-growing language, which has grown in the ranks of programming languages once again. This time it edged out Java.



## References:

- 1) <https://www.cosmopolitan.com/uk/reports/a9931660/psychology-social-media-likes-mental-health-issues/>
- 2) <https://stackoverflow.com/>
- 3) <https://www.statista.com/>
- 4) <https://trends.google.com/trends/?geo=US>

## □ Appendix

### i. Audience

The intended audience for this research magazine are the different web developers in the entire world and even the aspirants interested in getting into the field of programming.

### ii. Colour

The colour combinations used are designed by keeping in mind the theme colour of Stack overflow that is black and orange for the map chart.

The remaining colors have been applied by looking at the different types of categories and charts used. A lot of categories are present in the different illustrations to signify the story the data is trying to depict in a precise manner.

### iii. Font

For the heading we have made use of Georgia which is a Serif Typeface designed by Matthew Carter. Serif font was used to highlight and make the headings easily readable.

For body text, Neue Haas Grotesk has been used. It is considered as the font that is most close to the pre-digital version of Helvetica ([www.fontbureau.com](http://www.fontbureau.com)). It was designed by Max Miedinger.

### iv. Figures

#### a. Figure 1

**Data Source:**

[www.statista.com](http://www.statista.com) Release

**Date:** July 2018

**Visual:** Horizontal Bar Chart

**Reason:** A horizontal bar graph was used to compare different choices selected by the respondents. To display the different choices or categories and compare their values, this chart gave the best result.

**Software:** Excel

#### b. Figure 2

**Data Source:**

[www.stackoverflow.com](http://www.stackoverflow.com)

**Release Date:** 2019

**Visual:** Pie Chart

**Reason:** A pie chart was used to display a bi-categorical or binary response and the total was displayed as the third part of the pie.

**Software:** Data Wrapper

#### c. Figure 3

**Data Source:**

[www.stackoverflow.com](http://www.stackoverflow.com)

**Release Date:** 2019

**Visual:** Horizontal Bar Chart

**Reason:** A horizontal bar graph was used to compare different age groups of the respondents. To display the different choices or categories and compare their values, this chart gave the best result.

**Software:** Tableau

**d. Figure 4**

**Data Source:**

[www.stackoverflow.com](http://www.stackoverflow.com)

**Release Date:** 2019

**Visual:** Clustered Bar Chart

**Reason:** A clustered bar chart was used to fit in the different categories of data and compare more than 2 dimensions in the same graph. Different colors were used to depict the differences in the categories.

**Software:** Power BI

**e. Figure 5**

**Data Source:** [www.stackoverflow.com](http://www.stackoverflow.com)

**Release Date:** 2019

**Visual:** Map (Colour Fill)

**Reason:** Map was used to highlight the number of respondents from different countries. The darker the color was set to increase with increasing number of respondents.

**Software:** Tableau

**f. Figure 6**

**Data Source:** [www.stackoverflow.com](http://www.stackoverflow.com)

**Release Date:** 2019

**Visual:** Ribbon Chart

**Reason:** A ribbon chart was used to determine the graph embeddings present in the data. Due to multiple categories a lot of data was segregated in concise manner with a multi-color scheme using the ribbon chart.

**Software:** Power BI

**g. Figure 7**

**Data Source:**

[www.stackoverflow.com](http://www.stackoverflow.com) **Date:** 2019

**Visual:** Word cloud

**Reason:** Word Cloud was used to determine the frequency of appearance of a value from the data. To be precise, if Python appeared a greater number of times in the attribute, it would have a bigger word in cloud diagram.

**Software:** PowerBI

#### **h. Figure 8**

**Data Source:**

[www.stackoverflow.com](http://www.stackoverflow.com) **Date:** 2019

**Visual:** Word cloud

**Reason:** Word Cloud was used to determine the frequency of appearance of a value from the data. To be precise, if Python appeared a greater number of times in the attribute, it would have a bigger word in cloud diagram.

**Software:** PowerBI

#### **i. Figure 9**

**Data Source:** [www.stackoverflow.com](http://www.stackoverflow.com)

**Release Date:** 2019

**Visual:** Funnel

**Reason:** Funnel charts are utilized to get a visual of different employment stages of the respondents

**Software:** Power BI

#### **v. Cleaning the data:**

Data was cleaned using Excel, Power BI and R. NA and null values were fixed and were filtered out wherever necessary.

